

PATHWAY ANALYSIS ASSUMPTIONS

A) Direct Ingestion of Surface Soils

$$\text{Intake} = \frac{(\text{CS})(\text{IR})(\text{CF})(\text{FI})(\text{EF})(\text{ED})}{(\text{BW})(\text{AT})}$$

CS = Soil Concentration

IR = Ingestion Rate = 120 mg\day (Time Weighted Average)

CF = Conversion Factor = 1E-06 kg\mg

FI = Fraction From Contaminated Soil = 1 0

EF = Exposure Frequency = 180 days\year

ED = Exposure Duration = 30 years

BW = Body Weight = 59 kg (Time Weighted Average)

AT = Averaging Time = 30 years

Toluene Oral Reference Dose = 0 2 mg\kg-day

Hazard Quotient = Intake\Reference Dose

B) Dermal Contact with Surface Soils

$$\text{Absorbed Dose} = \frac{(\text{CS})(\text{CF})(\text{SA})(\text{AF})(\text{ABS})(\text{MF})(\text{EF})(\text{ED})}{(\text{BW})(\text{AT})}$$

SA = Skin Surface Area = 5000 cm²\eventAF = Skin to Soil Adherence Factor = 0 5 mg\cm²

ABS = Absorption Factor = 0 1

MF = Matrix Factor = 0 15 (Soil Matrix Effect)

BW = Body Weight = 70 kg

All other Intake parameters are as defined in part A

Assume 100% absorption of toluene so the absorbed dose reference dose (RfD) is equal to the administered dose RfD

C) Inhalation of Suspended Soils

$$\text{Intake} = \frac{(\text{CS})(\text{TSP})(\text{CF})(\text{IR})(\text{EF})(\text{ED})}{(\text{BW})(\text{AT})}$$

TSP = Total Suspended Particulates = 0 01 mg\m³IR = Inhalation Rate = 20 m³\day

EF = Exposure Frequency = 350 days\year

BW = Body Weight = 70 kg

Toluene Inhalation Reference Dose = 5 7E-01 mg\kg-day

All other Intake parameters are as defined in part A